



Dart Aerospace Ltd.
1270 Aberdeen St
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K6A 1K7
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Tel (613) 632-5200
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D3488-3**Job Sheet 190997****Part No:** D3488-3**Job Qty:** 10 pcs**Part Name:** Blade Fitting, LH**Part Weight:** 0 lbs**Status:** New**Priority:** Medium**Job Created:** 2/20/19**Job Tracking No:****Due Date:** 3/22/19**Created By:** Jesse White**Type:** Stock**Description:** SIOP**Note:** DSK101 REV.D / D3488 REV.C IPP REV:A 18.11.09 NEW ISSUE DD VERF:JFS**Ship Via:****Bill of Materials****Job Routing**

Op No	Operation	Qty	Start Date	Due Date	Standard		Workcenter/Supplier		Lead Time	Sign-off
					Setup Hrs	Run Hrs	Workcenter / Supplier			
100	Doosan - 1	10 pcs		3/22/19	0.00	8.79	Doosan - 1			DAS 5 9-89
110	QC 2	10 pcs		3/22/19	0.00	0.00	QC 2 - 1			
							QC 2 - 12			
							QC 2 - 14			
							QC 2 - 17			
							QC 2 - 19			
							QC 2 - 2			
							QC 2 - 20			
							QC 2 - 22			
							QC 2 - 23			
							QC 2 - 25			
							QC 2 - 32			
							QC 2 - 33			
							QC 2 - 35			
							QC 2 - 39			
							QC 2 - 4			
							QC 2 - 40			
							QC 2 - 44			
							QC 2 - 45			
							QC 2 - 48			
							QC 2 - 49			
							QC 2 - 50			
							QC 2 - 51			
							QC 2 - 52			
							QC 2 - 54			
							QC 2 - 56			
							QC 2 - 57			
							QC 2 - 62			
							QC 2 - 63			
							QC 2 - 8			

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**Container No:** S179042**Part:** D3488-3**Job No:** 190997**Serial No/Batch:** S179042**Revision:** D/C**Inspector:****Exp Date:****Instructions:**

Dart Aerospace Ltd.
1270 Aberdeen Street
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CANADA
TEL.: 1 613 632-5200
Email: sales@dartaero.com
www.dartaerospace.com

Date: 05/08/19

Entered: _____ Date: _____



WORK ORDER NON-CONFORMANCE / ROUTE UPDATE

NCR No. _____

Route update only ☐

Job: _____ Part No. _____	DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐	DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Eng. (Non-AW) ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Engineering ☐ Water Jet ☐ Supplier Quality ☐			
Date : _____	Sequence #: _____	QTY Affected : _____		MRB (QSI042)	
Description Work Order Deviation		Disposition		Completed By	
				Lead hand / Supervisor	
				QC / QA Coordinator	
Root Cause Operator ☐ Manufacturing Process ☐ Equip/Tooling ☐ Handling/Presservation ☐ Material ☐ Product Improvement ☐ Process Improvement ☐ Human Factors ☐		FAULT CATEGORY ☐ Pressure/Forced ☐ Bending ☐ Crushing ☐ Cracks ☐ Crimp/Kink/Ripple/Wave/Twist ☐ Marks/Chatter ☐ Mislabeled ☐ Contamination ☐ Misaligned/off center ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Incomplete/Unclear Instructions ☐ Drill Holes ☐ Fit/Function ☐ Power Loss/Surge ☐ Folio/Program ☐ Grain Direction ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set/Set-up ☐ Positioned Wrong ☐ Outside Tolerance ☐ Drawing ☐ Finish ☐ Part Lost/Missing ☐ Misread			
Other/Details:					

				QC 2 - 66	
				QC 2 - 64	
120 HAAS 4 Axis - B4B	10 pcs	3/22/19	0.11 6.86	HAAS - 1 - B4B	
				HAAS - 2 - B4B	
				HAAS - 3 - B4B	
				HAAS - 4 - B4B	
130 QC 2	10 pcs	3/22/19	0.00 0.00	QC 2 - 1	mm. 2019/05/13
				QC 2 - 12	
				QC 2 - 14	
				QC 2 - 17	
				QC 2 - 19	
				QC 2 - 2	
				QC 2 - 20	
				QC 2 - 22	
				QC 2 - 23	
				QC 2 - 25	
				QC 2 - 32	
				QC 2 - 33	
				QC 2 - 35	
				QC 2 - 39	
				QC 2 - 4	
				QC 2 - 40	
				QC 2 - 44	
				QC 2 - 45	
				QC 2 - 48	
				QC 2 - 49	
				QC 2 - 50	
				QC 2 - 51	
				QC 2 - 52	
				QC 2 - 54	
				QC 2 - 56	
				QC 2 - 57	
				QC 2 - 62	
				QC 2 - 63	
				QC 2 - 8	
				QC 2 - 66	
				QC 2 - 64	mm. 2019/05/13
140 QC 8	10 pcs	3/22/19	0.00 0.00	QC 8 - 12	
				QC 8 - 14	
				QC 8 - 17	
				QC 8 - 20	
				QC 8 - 25	
				QC 8 - 3	
				QC 8 - 32	
				QC 8 - 33	
				QC 8 - 35	
				QC 8 - 39	
				QC 8 - 4	
				QC 8 - 44	
				QC 8 - 45	
				QC 8 - 49	mm. 2019/05/14
				QC 8 - 58	
				QC 8 - 8	
				QC 8 - 9	
				QC 8 - 68	
				QC 8 - 67	
				QC 8 - 1 (A)	
				QC 8 - 47	
150 Handfinish - 1-1 Chemical-	10	3/22/19	0.00 0.30	Handfinish - 1 - 1 -	
				Plex 2/20/19 1:16 PM dart.white.jesse	

Entered: _____ Date: _____



WORK ORDER NON-CONFORMANCE / ROUTE UPDATE

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Other/Details:					

B4B

pcs

				B4B	
				Handfinish - 1 - 2 - B4B	
				Handfinish - 1 - 3 - B4B	
				Handfinish - 1 - 4 - B4B	
				Handfinish - 1 - 5 - B4B	
				Handfinish - 1 - 6 - B4B	
				Handfinish - 1 - 7 - B4B	
				Handfinish - 1 - 8 - B4B	
				Handfinish - 1 - 9 - B4B	
				Handfinish - 1 - 10 - B4B	19-05-15
				Handfinish - 1 - 11 - B4B	
				Handfinish - 1 - 12 - B4B	
				Handfinish - 1 - 13 - B4B	
				Handfinish - 1 - 14 - B4B	
				Handfinish - 1 - 15 - B4B	
				Handfinish - 1 - 16 - B4B	
				Handfinish - 1 - 17 - B4B	
				Handfinish - 1 - 18 - B4B	
				Handfinish - 1 - 19 - B4B	
				Handfinish - 1 - 20 - B4B	
				Handfinish - 1 - 21 - B4B	
				Handfinish - 1 - 22 - B4B	
160	Powdercoat - 1 White Gl(A)- B4B	10 pcs	3/22/19	0.00 0.35	Powdercoat - 1 - B4B
					Powdercoat - 2 - B4B
					Powdercoat - 3 - B4B
					Powdercoat - 4 - B4B
170	QC 3	10 pcs	3/22/19	0.00 0.00	QC 3 - 10
					QC 3 - 13
					QC 3 - 15
					QC 3 - 17
					QC 3 - 18
					QC 3 - 2
					QC 3 - 26
					QC 3 - 28
					QC 3 - 3
					QC 3 - 30
					QC 3 - 34
					QC 3 - 36
					QC 3 - 41
					QC 3 - 51
					QC 3 - 58
					QC 3 - 59

160 Powdercoat - 1 White Gl(A)- B4B

M 151749.

START: 8:00 O.V.T: 300° FINISH 8:30.

170 QC 3

10 pcs

3/22/19

0.00 0.00

Powdercoat - 1 - B4B

Powdercoat - 2 - B4B

Powdercoat - 3 - B4B

Powdercoat - 4 - B4B

QC 3 - 10

QC 3 - 13

QC 3 - 15

QC 3 - 17

QC 3 - 18

QC 3 - 2

QC 3 - 26

QC 3 - 28

QC 3 - 3

QC 3 - 30

QC 3 - 34

QC 3 - 36

QC 3 - 41

QC 3 - 51

QC 3 - 58

QC 3 - 59

19-5-16

19-5-21

DAS
15
9-89

Entered: _____ Date: _____



WORK ORDER NON-CONFORMANCE / ROUTE UPDATE

NCR No. _____

Route update only ☐

Job: _____ Part No. _____	DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐	DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Eng. (Non-AW) ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Engineering ☐ Water Jet ☐ Supplier ☐ Quality ☐			
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Root Cause Operator ☐ Manufacturing Process ☐ Equip/Tooling ☐ Handling/Presservation ☐ Material ☐ Product Improvement ☐ Process Improvement ☐ Human Factors ☐		FAULT CATEGORY ☐ Pressure/Forced ☐ Bending ☐ Crushing ☐ Cracks ☐ Crimp/Kink/Ripple/Wave/Twist ☐ Marks/Chatter ☐ Mislabeled ☐ Contamination ☐ Misaligned/off center ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Incomplete/Unclear Instructions ☐ Drill Holes ☐ Fit/Function ☐ Power Loss/Surge ☐ Folio/Program ☐ Grain Direction ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set/Set-up ☐ Positioned Wrong ☐ Outside Tolerance ☐ Drawing ☐ Finish ☐ Part Lost/Missing ☐ Misread			
Other/Details:					

200	Packaging 3-1 - Stock - B4B	10 pcs	3/22/19	0.00 0.00	QC 3 - 6	
					QC 3 - 68	
					QC 3 - 9	
					Packaging 3 - 1 - B4B	
					Packaging 3 - 2 - B4B	
					Packaging 3 - 3 - B4B	
					Packaging 3 - 4 - B4B	
					Packaging 3 - 5 - B4B	
					Packaging 3 - 6 - B4B	
					Packaging 3 - 7 - B4B	
					Packaging 3 - 8 - B4B	
					Packaging 3 - 9 - B4B	
					Packaging 3 - 10 - B4B	
					Packaging 3 - 11 - B4B	
					Packaging 3 - 12 - B4B	
					Packaging 3 - 13 - B4B	
					Packaging 3 - 14 - B4B	
					Packaging 3 - 15 - B4B	12-000 19-5-21
					Packaging 3 - 16 - B4B	
					Packaging 3 - 17 - B4B	
					Packaging 3 - 18 - B4B	
					Packaging 3 - 19 - B4B	
					Packaging 3 - 20 - B4B	
					Packaging 3 - 21 - B4B	
					Packaging 3 - 22 - B4B	
					Packaging 3 - 23 - B4B	
					Packaging 3 - 24 - B4B	
					Packaging 3 - 25 - B4B	
					Packaging 3 - 26 - B4B	
					Packaging 3 - 27 - B4B	
					Packaging 3 - 28 - B4B	
					Packaging 3 - 29 - B4B	
					Packaging 3 - 30 - B4B	
					Packaging 3 - 31 - B4B	
					Packaging 3 - 32 - B4B	
					Packaging 3 - 33 - B4B	
					Packaging 3 - 34 - B4B	
					Packaging 3 - 35 - B4B	
					Packaging 3 - 36 - B4B	
210	QC 21 - SA	10 pcs	3/22/19	0.00 0.00	QC 21 - SA - 21	DAG
					QC 21 - SA - 70	21 MAY 21 2019
					QC 21 - SA - 53	9-05

Part Op 100 - 1-Turn as per Dwg DSK 101 & Folio FC491

Descriptions: 110 - QC2 Machining-2 (QC2- Inspect parts off machine FAI/FAIB)

120 - HAAS1-3 (HAAS CNC Vertical Machine) 1-Machine as per Folio FA627 & Dwg D3488

130 - QC2 Machining-2 (QC2- Inspect parts off machine FAI/FAIB)

140 - QC8 Machining-2 (QC8- Inspect parts - second check)

150 - HandFinish1 (Chemical Conversion Coat per QSI005 4.1)

160 - Powdercoat1 (White Gloss(Ref:4.3.5.1) per QSI005 4.3-Alum) START TIME: _____ OVEN TEMPERATURE:

FINISH TIME: _____

170 - QC3 (QC3- Inspect Part Finish)

200 - Packaging3-1 (Identify as per dwg & Stock Location: _____ LOCATION : FP001

210 - QC21 (QC21- Final Inspection - Work Order Release)

Job BOM

Part / Item	Component Name	Quantity	Operation	Container
D6103-003	Round Billet, Aluminum	10 pcs (1 ea)	100-Doosan - 1	820/81619 S150863 X10

Entered: _____ Date: _____



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Date : _____	Sequence #: _____	QTY Affected : _____		MRB (QSI042)	
Description Work Order Deviation		Disposition		Completed By	
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Root Cause Operator ☐ Manufacturing Process ☐ Equip/Tooling ☐ Handling/Presservation ☐ Material ☐ Product Improvement ☐ Process Improvement ☐ Human Factors ☐		FAULT CATEGORY ☐ Pressure/Forced ☐ Bending ☐ Crushing ☐ Cracks ☐ Crimp/Kink/Ripple/Wave/Twist ☐ Marks/Chatter ☐ Mislabeled ☐ Contamination ☐ Misaligned/off center ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Incomplete/Unclear Instructions ☐ Drill Holes ☐ Fit/Function ☐ Power Loss/Surge ☐ Folio/Program ☐ Grain Direction ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set/Set-up ☐ Positioned Wrong ☐ Outside Tolerance ☐ Drawing ☐ Finish ☐ Part Lost/Missing ☐ Misread			
Other/Details:					

Job Allocations				
Operation	Component Part	Required	Inventory	Allocated
100-Doosan - 1	D6103-003	10	27	0
Part Specifications				
Specifications could not be found.				

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Entered: _____ Date: _____



WORK ORDER NON-CONFORMANCE / ROUTE UPDATE

NCR No. _____

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Job: _____ Part No. _____	DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐	DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Eng. (Non-AW) ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Engineering ☐ Water Jet ☐ Supplier ☐ Quality ☐			
Date : _____	Sequence #: _____	QTY Affected : _____		MRB (QSI042)	
Description Work Order Deviation		Disposition		Completed By	
				Lead hand / Supervisor	
				QC / QA Coordinator	
Root Cause Operator ☐ Manufacturing Process ☐ Equip/Tooling ☐ Handling/Presservation ☐ Material ☐ Product Improvement ☐ Process Improvement ☐ Human Factors ☐		FAULT CATEGORY ☐ Pressure/Forced ☐ Bending ☐ Crushing ☐ Cracks ☐ Crimp/Kink/Ripple/Wave/Twist ☐ Marks/Chatter ☐ Mislabeled ☐ Contamination ☐ Misaligned/off center ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Incomplete/Unclear Instructions ☐ Drill Holes ☐ Fit/Function ☐ Power Loss/Surge ☐ Folio/Program ☐ Grain Direction ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set/Set-up ☐ Positioned Wrong ☐ Outside Tolerance ☐ Drawing ☐ Finish ☐ Part Lost/Missing ☐ Misread			
Other/Details:					

DART AEROSPACE LTD	Work Order:	190997
Description: Blade Fitting, LH / Turning Detail for D3488- 152 ³	Part Number:	D3488-03
Inspection Dwg: D3488 / DSK101 Rev: C / D		Page 1 of 2

FIRST ARTICLE INSPECTION CHECKLIST

☒ First Article
 ☐ Prototype

Drawing Dimension	Tolerance	Actual Dimension	Accept	Reject	Method of Inspection	Comments
Lathe Section						
Ø2.150	+/-0.005	2.100			Caliper	
Ø2.780	+/-0.005	2.779			Caliper	
Ø3.125	+/-0.010	3.123			Caliper	
Ø3.346	+/-0.010	3.347			Caliper	
0.125 x 45°	+/-0.010 x +/-0.1°	.127 x 45°			Caliper	
8.000	+0.030/-0.000	8.012			Caliper	
9.250	+/-0.010	9.249			Caliper	
0.188	+/-0.010	.188			Caliper	
R0.032	+/-0.010	R.032				
R0.062	+/-0.010	R.062				
Ø0.297	+0.005/-0.001	N/A				
Ø0.430	+/-0.010	N/A				
0.100	+/-0.010	N/A				
0.200	+/-0.010	.202			Caliper	
2.620	+/-0.010	2.619			Caliper	
3.500	+/-0.010	N/A				
1.005	+/-0.010	N/A				
Ø0.484	+0.005/-0.001	.486			Caliper	
1.180	+/-0.010	1.18			Caliper	
3.150	+/-0.010	3.147			Caliper	
3.070	+/-0.010	3.066			Caliper	
R0.063	+/-0.010	R.0625				

DART AEROSPACE LTD		Work Order:	
Description: Blade Fitting, LH / Turning Detail for D3488-10		Part Number:	D3488-10
Inspection Dwg: D3488 / DSK101 Rev: C / D		Page 2 of 2	

Drawing Dimension	Tolerance	Actual Dimension	Accept	Reject	Method of Inspection	Comments
Milling Section						
Ø0.508	+0.006/-0.001	0.508	✓		Pin gauge	
0.750	+/-0.010	0.750	✓		high gauge	
1.500	+/-0.010	1.496	✓		vernier	
11.18	+/-0.030	11.179	✓		high gauge	
R0.062	+/-0.010	R.062	✓		Gaborit	
0.125	+/-0.010	0.126	✓		vernier	
0.590	+/-0.010	0.585	✓		high gauge	
0.793	+/-0.010	0.799	✓		vernier	
1.351	+/-0.010	1.352	✓		high gauge	
1.317	+/-0.010	1.315	✓		vernier	
1.802	+/-0.010	1.800	✓		high gauge	

Measured by:	<i>[Signature]</i>	Audited by:	<i>[Signature]</i>	Prototype Approval:	N/A
Date:	19/05/2019/05/12	Date:	19/05/19	Date:	N/A

Rev	Date	Change	Revised by	Approved
A	06.03.31	New Issue	KJ/JLM	
B	08.09.19	Reformat P/O D3488-041	KJ/JLM	
C	08.12.02	Dimension 8.000 removed	KJ/JLM	
D	18.11.21	Dimension 0.125 changed to 0.200	MG	<i>[Signature]</i>